NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

WASTE UTILIZATION

(ac.)
CODE 633

DEFINITION

Using agricultural wastes such as manure and wastewater or other organic residues.

PURPOSES

Protect water quality;

Provide fertility for crop, forage, fiber production, and forest products;

Improve or maintain soil structure;

Provide feedstock for livestock;

Provide a source of energy.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies where agricultural wastes including animal manure and contaminated water from livestock and poultry operations; solids and wastewater from municipal treatment plants; and agricultural processing residues are generated, and/or utilized.

Significant amounts of pesticides, petroleum products, and other nonplant or animal products must be excluded from the wastes covered by this standard.

CRITERIA

GENERAL CRITERIA APPLICABLE TO ALL PURPOSES

All federal, state, and local laws, rules, and regulations governing waste management, pollution abatement, health, and safety shall be strictly adhered to. Laws and regulations of particular concern include those involving water rights, land use, pollution control, property easements, wetlands, preservation of cultural resources, and endangered species. By law, wetlands, as well as lakes, streams, and aquifers, must be protected from pollution. The owner or operator shall be responsible for securing any and all required permits or approvals related to waste utilization, and for operating and maintaining any components in accordance with applicable laws and regulations.

Use of agricultural wastes shall be based on at least one analysis of the material during the time it is to be used. In the case of daily spreading, the waste shall be sampled and analyzed at least once each year. As a minimum the waste analysis should identify nutrient and specific ion concentrations. Where the metal content of municipal wastewater, sludge, septage, and other agricultural waste is of concern, the analysis shall also include determining the concentration of metals in the material.

Where agricultural wastes are to be spread on land not owned or controlled by the producer, the waste management plan, as a minimum, shall document the amount of waste to be transferred and who will be responsible for the environmentally acceptable use of the waste.

Records of the use of wastes shall be kept a minimum of five years as discussed in Operation and Maintenance below.

Routine stockpiling of waste outside the animal production facility shall be done only at a designated stockpiling site (see standard for Waste Storage Facility (313)).

ADDITIONAL CRITERIA TO PROTECT WATER QUALITY

All agricultural waste shall be utilized in a manner that minimizes the opportunity for contamination of surface and ground water supplies.

Agricultural waste shall not be land-applied on soils that are frequently flooded, as defined by

the National Cooperative Soil Survey, during the period when flooding is expected.

When liquid wastes are applied, the application rate shall not exceed the infiltration rate of the soil, and the amount of waste applied shall not exceed the moisture holding capacity of the soil profile at the time of application. Wastes shall not be applied to frozen or snow-covered ground.

ADDITIONAL CRITERIA FOR PROVIDING FERTILITY FOR CROP, FORAGE, FIBER PRODUCTION, AND FOREST PRODUCTS

Where agricultural wastes are utilized to provide fertility for crop, forage, fiber production, and forest products, the practice standard Nutrient Management (590) shall be followed.

Where municipal wastewater and solids are applied to agricultural lands as a nutrient source, the single application or lifetime limits of heavy metals shall not be exceeded. The concentration of salts shall not exceed the level that will impair seed germination or plant growth.

Nutrient planning shall be based on current soil test results (not older than three years) developed in accordance with South Dakota State University (SDSU) guidance.

ADDITIONAL CRITERIA FOR IMPROVING OR MAINTAINING SOIL STRUCTURE

Wastes shall be applied at rates not to exceed the crop nutrient requirements or salt concentrations as stated above, and shall be applied at times the waste material can be incorporated by appropriate means into the soil within 24 hours of application.

ADDITIONAL CRITERIA FOR PROVIDING FEEDSTOCK FOR LIVESTOCK

Agricultural wastes to be used for feedstock shall be handled in a manner to minimize contamination and preserve its feed value. Chicken litter stored for this purpose shall be covered. A qualified animal nutritionist shall develop rations which utilize wastes.

ADDITIONAL CRITERIA FOR PROVIDING A SOURCE OF ENERGY

All energy producing components of the system shall be included in the waste management plan and provisions for utilization of residues of energy production identified.

Where the residues of energy production are to be land-applied for crop nutrient use or soil conditioning, the criteria listed above shall apply.

CONSIDERATIONS

For land application, the effect of Waste Utilization on the water budget should be considered, particularly where a shallow ground water table is present or in areas prone to runoff. Limit waste application to the volume of liquid that can be stored in the root zone.

Minimize the impact of odors of land-applied wastes by incorporating into the soil when possible and by making application at times when temperatures are cool and wind direction is away from neighbors.

Agricultural wastes contain pathogens and other disease-causing organisms. Wastes should be utilized in a manner that minimizes their disease potential.

Priority areas for land application of wastes should be on flat to gentle slopes (less than four percent) located as far as possible from water conveyances or water bodies. When wastes are applied on more sloping land or land adjacent to water conveyances such as waterways, other conservation practices should be installed to reduce the potential for offsite transport of waste.

For surface water protection, areas of fields within 200 feet of a lake, stream, or conveyance to these waters should be considered highly vulnerable to potential water contamination. Consider practices such as Filter Strip (393), Grassed Waterway (412), and Riparian Forest Buffer (391A) to protect or improve water quality.

It is preferable to apply wastes on pastures and hayland soon after cutting or grazing before re-growth has occurred.

Reduce nitrogen volatilization losses associated with the land application of some waste by incorporation within 24 hours where possible.

Minimize environmental impact of land-applied waste by limiting the quantity of waste applied to the rates determined using the practice

standard Nutrient Management (590) for all waste utilization.

Where land application sites are limited, nutrient content of wastes may be reduced by processing in treatment lagoons, gas generators, composting systems, constructed wetlands, and/or other treatment systems.

PLANS AND SPECIFICATIONS

Plans and specifications for waste utilization shall meet this standard and shall describe the requirements needed to achieve the intended purpose. The waste management plan is to account for the utilization or other disposal of all animal wastes produced, and all waste application areas shall be clearly indicated on a plan map.

OPERATION AND MAINTENANCE

The operation and maintenance plan shall include the dates of periodic inspections and maintenance of equipment and facilities used in waste utilization. The plan should include what is to be inspected or maintained, and a general time frame for making necessary repairs.

Records shall be kept for a minimum period of five years. Records must be kept for longer periods where required by law, regulation, program or contract. These records must include when appropriate:

Quantity, analysis, and sources of nutrients applied;

Soil test results and recommendations for nutrient application;

Waste application rates and field identifications where land applied, and the dates and amounts of waste removed from the system due to feeding, energy production, or export from the operation;

Dates, times, and methods of application;

Crops grown and yields (both yield goals and measured yield);

Other tests, such as determining the nutrient content of the harvested product.